What is Archaeology?

Archaeology is one way of studying the past. People who live at a place leave clues in the ground. An archaeologist is like a detective, working carefully to discover more about the people who lived there.

The Mystery of History

Lesson Overview: This lesson will include: learning related facts and information (Knowledge), understanding how the past relates to the future (Comprehension), applying theories based on findings (Application), analyzing the relationship of material artifacts to the culture of a people (Analysis), classifying and graphing artifacts based on analysis (Synthesis) and finally evaluating the science of archeology and its role in communicating facts, concepts and theories as relates to the history of a place and its people. Also inherent in this lesson is a focus on preservation and protection, namely how and why we preserve and protect historical and cultural objects.

Lesson Theme: The material and cultural artifacts left by a people provides clues for understanding their culture and way of life.

Goals:

1) To provide overview of methods of researching and gathering information from archeological and historical sites
2) To demonstrate techniques of artifact gathering in a safe, and appropriate manner.
3) To foster greater appreciation for preservation and protection of historical objects, artifacts, and information.

Objectives:

1) Define terms related to archeology
2) Understand the use and relevance of at least three tools related to gathering historical data.
3) Explain how congressional acts provide for protection and preservation of cultural and historical objects.
4) Analyze how the context of an archeological find relates to the story or lifeways of the people it represents.
5) Compare and contrast artifacts and their uses in different time periods.

Georgia Quality Curriculum Standards

9-12 Social Studies:
Topic: Archaeology
Standard: Identifies and applies techniques used in archaeological research.

Topic: Archaeological Techniques
Standard: Describes how archaeologists use artifacts to explore the origins and development of the human experience.

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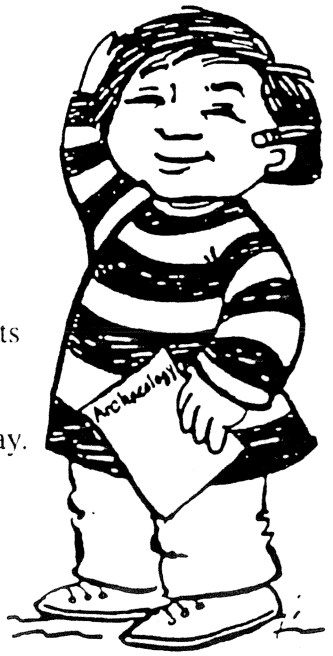
ARCHAEOLOGY PRETEST
TRUE OR FALSE?

TRUE	FALSE	
_____	_____	1. Archaeologists only discover sites by accident.
_____	_____	2. Everything used by people is an artifact.
_____	_____	3. Archaeologists must look at all the clues to figure out what went on at a site.
_____	_____	4. Change in soil color and texture are clues for the archaeologist.
_____	_____	5. Only archaeologists discover sites.
_____	_____	6. Prehistoric people had libraries.
_____	_____	7. Old maps can help locate historic sites.
_____	_____	8. Permits to do archaeology come from any local land developer.
_____	_____	9. All archaeologists are men.
_____	_____	10. Every archaeological excavation uses the same kind of equipment.
_____	_____	11. At an archaeology site the oldest artifacts are usually found at the bottom level.
_____	_____	12. Grids are evenly measured squares.
_____	_____	13. Glass lasts longer than leather in the ground.
_____	_____	14. Artifacts are always broken.
_____	_____	15. Archaeologists can learn about everyday life from the study of artifacts.
_____	_____	16. All archaeologists dig only for gold coins.
_____	_____	17. The archaeologist stops working once the artifacts are dug up.
_____	_____	18. We all benefit when artifacts are placed on display.
_____	_____	19. Everyone on the crew does the same job.
_____	_____	20. Archaeology helps us learn about the past.



FOUNDATIONS OF ARCHEAOLOGY

Sediment covers lost civilizations; volcano's erupt and bury entire towns, water moves in and landscapes change, erosion removes and deposits sediment in continuous layers. These layers, building up over time cover old burial sites, and scenes of war, simple and complex farming plots, sacred places and simple homes, the bones and bread of those gone before, leaving behind visible reminders which invoke images of a life we seek to understand. Human experience has been many thousands of years in the making, during which time civilizations have come and gone, and the earth has seen climatic and evolutionary changes.

Our earliest ancestors evolved in Africa almost four million years ago, perhaps more. Throughout this time humans have learned to exist and even thrive in the natural world by modifying objects and materials found in nature. Early humans created tools as well as shelter and homes from rock, wood, stones, skin, and shells. Other objects provided containers for cooking, storing or preparing meals. Still others had special or spiritual significance which were used in both daily life and in rites and ceremonies. Many of these objects and features have been left behind and now tantalize us with questions. I wonder what this was used for? How did they live "in the old days"? How do we learn about the life ways of these early peoples? It is through the science of discovery. The science of Archaeology.

WHAT IS ARCHAEOLOGY?

Archaeology is a division of the social studies called Anthropology. Anthropology is the study of man, in the past and in the present. It is made of four disciplines: old and new world archaeology, cultural anthropology, anthropological linguistics and physical anthropology. Archaeology is the study of the human past using information from artifacts and structures that people made and/or used and then discarded or left behind. The term "archaeology" is derived from two Greek words, "archaios" or ancient and of course "ology" meaning the study of.

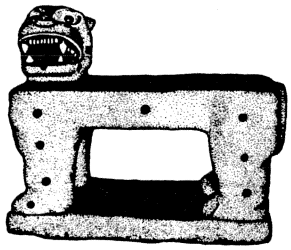
WHAT IS AN ARCHEAOLOGIST?

Early archaeology actually began with the studies of ancient Egypt, Greece, and Rome. In the 19th and 20th centuries, most archaeological work was being conducted in Europe related to the "Cradle of Civilization". In the early 1800's however, explorers discovered the ancient Mayan and Aztec ruins in South America which spurred great interest in archaeology in the "New World". European settlers also encountered ancient mounds and earthwork complexes in the Midwest and Southeast. Archeology became established as a formal discipline n the late 19th and 20th centuries.

Archaeologists are trained scientists and professionals who study the remains of man or human groups that have lived in the past. Archaeologists believe that we can better understand people of today by studying the people of the past. They study artifacts and features to determine what happened at a particular site and how people at a site lived. Archaeologists can specialize in a wide range of topics. Some choose to work with museum collections. Others decide to specialize in identifying animal or plant remains. Some archaeologists even specialize in a geographical area, such as Egypt or the Southwest. Underwater archaeology is yet another specialty. Historical archaeologists study humans written records such as maps, journals, media, cave art etc. Linguistic anthropologists study the variety of human languages and how we communicate. Physical anthropologists study the biological heritage and physical differences of human kind.

Archaeologists use many methods to address questions about past human behavior. They gather "new data" by conducting regional surveys to identify potential sites. Archaeologists often reexamine data such as artifact collections, site records, and published reports from previously conducted projects. New techniques may allow them to learn from data and artifacts that have been curated (stored and cataloged) from many years. They may ask a new set of questions. For instance, as basic human survival needs are the same, but technology and skill advances, new questions are raised.

Archaeologists are responsible for making the results of their work available to other archaeologist's and the public, through research centers, exhibits, museums and education programs. Archaeology requires a broad understanding of many things: soils, plants and animal life, surveying, chemistry, computers, statistics, geology, social and biological sciences, and research skills.



WHAT IS AN ARTIFACT?

An artifact is any object made or modified by humans. A clay pottery shard, a shell tool, a clay tobacco pipe, animal bone jewelry, a brass candlestick, a broken dish, English coins, Spanish olive jar fragments, shell weapons and shell shot are all examples of artifacts found on Cumberland Island. Items we use in our everyday life will become the artifacts for future archaeologist. Even a landfill, with today's garbage, will provide an archaeologist a wealth of information about our cultural practices and beliefs.

Features are places where some activity has occurred. Features are considered to be portable or non-portable. For instance, free-standing chimneys are all that remains of a bustling slave community on Cumberland Island. Other features or structures that remain are ruins of early antebellum walls, grain silos, cattle dipping pins, ruins of support structures, gravestones, Victorian mansions, and in fact an early 1900's home known as Plum Orchard that still stands. Portable features, better known as artifacts, can actually

be taken to the lab and studied. Fragments of a broken plate or pot, can be collected and taken to the lab, studied, cataloged, and in some cases reassembled.

WHAT IS AN ARCHAEOLOGICAL SITE?

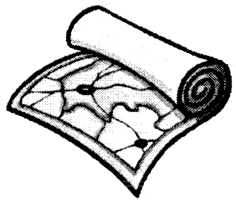
Archaeological sites are the physical remains of the past. By studying the remains, archaeologists are able to collect data and answer questions about the past. Archaeological sites include shell middens or refuse piles, building remains, features such as fire pits, stockade posts, and grave sites, in fact any physical evidence of past cultural or human activity. These remains have often been buried and need to be studied through archaeological excavation. All archaeological sites are fragile and non-renewable; they cannot be rebuilt or remade. Even excavation by its very nature forever alters the site, so it is important that archaeologists carefully did only as much as needed in order to interpret a particular site for its valuable information.

Cumberland Island National Seashore has 37 known cultural and historical sites, all potential sources of a wealth of information about its thousands of years of human occupation. The island has been home to humans for at least 4000 years, from early native peoples, through colonial expansion, plantation era, through the age of wealthy industrialists, and the current designation of a Federally protected natural and cultural heritage site. Archeological data from these sites provide valuable information about what life may have been like during each of these time periods. Pottery shards, arrowheads, spear points, shell middens, slave cabins, mansions ruins, cattle dipping pens, dishware, jewelry, early and modern tools, were all items left behind by earlier cultures. These provide clues to life ways and settlement patterns. However, gathering this information is much like putting a puzzle together, most of the time with many pieces missing.

Finding a Site

How do you find an archaeological site?" "How do you know where to dig?" These are questions that archaeologists hear over and over.

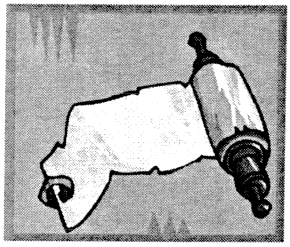
Occasionally, sites are partially or completely excavated to address specific research questions, or to save information prior to disturbance by a development project, for example laying sewer lines, roadways, utility access, or construction projects that involve federal or state funding. Archaeologists locate historic sites by consulting maps, and written records. Historic colonial accounts of encounters with early peoples provide clues about objects and their uses and locations. Sometimes early sites are located simply by field surveys This includes walking across the ground looking for anything that is not natural to the area, such as row of rocks, depressions or mounds, chips of stone, dark soil, differences in vegetation and actual artifacts. Many times sites are simply discovered by chance. For instance home owners find artifacts, building foundations, abandoned wells or privies, and other features on their lot or land. When these discoveries are reported, archaeologists visit the site, take notes, and photograph what has been found. When a site is discovered, archaeologists record data about it on a site form. Recording field data is a critical component of the archaeological process. Information about the vegetation, soil, elevation and location is recorded, as well as a description of the site, artifacts, and structures present. Photos are taken and a



map is made. The site is then evaluated for its information potential and a determination is made whether or not the site has buried deposits. Based on initial information, decisions will be made as to how far to take the investigation, they will investigate whether there is any supporting documentation or evidence of human activity, and then decide whether an actual dig should be conducted, and determine what information they hope to uncover. Archaeologists dig in the soil or excavate to find clues on how groups lived in the past. Digging, however, is not a chief objective of excavation, but a means to an end. The purpose of an archeological site excavation is to discover new information about the past.

EXCAVATING A SITE

If the survey was performed because of a development project proposal, archaeologists will recommend to the agency decision-maker what should be done about the cultural resources. Some sites have limited information potential, and only in-depth recording is needed. For sites containing important or significant data, it will be recommended that they be left undisturbed. Many times the effort is made to move a project or alter a project to avoid disturbing significant sites. Other times developers mitigate sites, and pay for the excavation and curatorial work and make the collection available to researchers and the public. Often time's cultural sites are simply lost due to development and lack of compliance with law, and not enough people to "police" these losses.



If a site is to be excavated, a research plan is prepared. This outlines what questions the archaeologists will try to answer and the techniques they will use to excavate and analyze data. The agency or owner that manages the land, the State and / or National Archaeologist and the Presidents Advisory Council on Historic Preservation will each review the research plan to assure it meets professional standards. Once this process is approved, the directing archaeologist, called the "principal investigator" will receive a permit to excavate.

Finally, the excavation begins. The principal investigator assembles a team of excavators. These people may be historians, specialized archaeologists, students, and trained amateurs. They are called an "archaeological crew". The first step is to clear vegetation from the site. Then, the archaeologist will establish a grid on the ground surface. The grid is the primary way to maintain context, or the relationship of artifacts and features to each other. The process of excavation destroys a site and once dug, context is lost. Researchers of the future can study a site even if they have never seen it, if good notes and maps were made of the excavation. Recording context is the key to interpreting the site from records.

A grid is set up using survey instruments, measuring tapes and wooden stakes or 6" mails. Squares are marked on the ground using stakes for each corner. Squares are most often 1 or 2 meters on a side. Each square has a unique identifying number from its grid coordinates. A map is mad of the site on graph paper; the graph square then corresponds

to the squares on the ground. Any artifacts or features that are found in that square are labeled with the corresponding grid number and the depth below the ground surface at which they were discovered. Archaeologists who are studying the artifacts in the lab are then able to know the exact location of an artifact or feature. Grids help them understand how people used that space within an area.

Depth is information recorded about the stratigraphic or occupation level of a site. Depth is measured by establishing a starting point, known as the datum. Typically, a piece of string is tied to a stake that is in the ground and is designated the datum point. The string is not moved after it is attached, because that would change the grid. The string is tied horizontal to the ground from one point to another and depth is measured from the datum point down to the feature or artifact. The archaeologist will dig each feature separately, making depth measurements at the top and bottom of the feature and collecting and bagging materials separately from the information about the rest of the grid. Each bag is marked with the grid coordinates where the artifact was found.

After archaeologists have mapped the surface of the site and recorded depths for the datum to the surface of the ground, they are ready to dig. Archaeologists use many "tools" to excavate or dig a site. It is a slow and tedious process. Some of the tools include shovels, measuring tape, string, whisk brooms, mesh screens, soft and firm bristled brushes, and trowels. These items are part of a "dig kit".

When archaeologists recover artifacts, they do so very methodically. Data is collected and artifacts are cataloged in relationship to the place and position is which they are found. This is called Context. It is important to record features in there original positions and their relationship to each other. Context refers to where the remains of material culture are found and their relationship not only to each other but the collective information about the entire site. To interpret the material culture in context, archaeologists use two principles: The Principle of Association, and the Principle of Superposition. The Principle of Association states that things found together were probably used together, and therefore, are probably the same age. An example would be the excavation of the slave cabin area. In the area of each cabin, similar objects were recovered. Items such as fragments of dishware, belt buckles, pipe stems and bowls, shoe grommets combs etc, provide evidence of home life. If a pipe stem was found by itself however, that might indicate that a traveler had dropped it, so it may not have been a home site, but could be dated by similar pipes of its style (association). The Principle of Superposition states that materials deposited firs are the oldest and would be found at the lowest or bottom of an "archaeological dig" or stratigraphy level while more recent materials are at the top.

WHY ARE ARTIFACTS IMPORTANT TO ARCHAEOLOGISTS?

Artifacts found on Cumberland Island provide valuable clues about various cultural periods. Literally, there are layers upon layers of human occupation, all of which are indications of life ways, food choices, trade and settlement patterns, building materials, wealth and social status, spiritual practices, dependence on natural resources, and cultural expressions through art, music and the written or spoken word. Artifacts and features reveal patterns indicating their activities, technology, beliefs and values. These studies lead us to a better understanding of the lives of our ancestors. Archeaologists, record every piece of information recovered from the investigation, and endeavor to recreate what life may have been like for earlier people. Protection of these archaeological resources is extremely important if we are to preserve these clues to our past.

The early years of archaeology in the United States were closely tied with cultural anthropology because Native Americans were viewed as a living example of what life may have been like in the past. These studies of Native American and the subsequent excavations of many ancient sites revealed tools, ceremonial objects, cooking vessels, etc. which were often put on display in museums. This increased the interest in both the culture and the artifacts that were discovered, unfortunately resulted in many "treasure hunters" looting these sites.

Scientific reports on the destruction and looting of prominent ruins resulted in the passage of the Antiquities Act of 1906. As a result of this act the first National Monuments commemorating and preserving archaeological sites were created throughout the United States. The Historic Sites Act of 1935 mandated federal interest in and preservation of a wide range of nationally significant sites and structures.
In 1966 the National Historic Preservation Act was enacted to lesson the adverse effects of federal development projects on archaeological sites and historic structures. By the 1970's, Cultural Resource management, the management of these "significant" sites and structures, became imperative, and public agencies, including the National Park Service began to employ professional archeaolgists to help meet this need. Increased looting and degradation of these sites, especially on federal lands prompted the passage of the Archeaological Resources Protection Act in 1979. this was closely followed by the Native American Graves and Repatriation Act I n1990, which allows for the consultation and recommendation from tribal members in regards to artifacts recovered or sites excavated.

The National Park Service continues to study and preserve the islands rich cultural and natural history, through continued archaeological investigation, researching oral histories and primary source documents, and conducting natural resource studies. This information is then shared with the public through education and interpretive programs, museum exhibits, and publications. Archeaological records and artifacts from the

island's 4000 years of cultural history are housed both in our museum archival storage and at the Southeastern Archeaological Center in Tallahassee, Florida.

Today, protection, preservation and management of these important cultural and historical resources are a major focus of archaeology. These historic places are part of our country's rich national heritage and should be preserved for the benefit and inspiration of all people. Understanding past cultures provides a framework for understanding today's cultures. Just as we today look on the relics of yesterday, so too will the people of tomorrow look at our lives.

Through the concepts and lessons in this unit, teachers will have an enhanced understanding of the principles of archaeology, and will then be able to apply these concepts to Georgia Quality Content Standards related to social studies, science, history, and math. The lessons present fun engaging activities applicable to a variety of grade levels that will enhance students understanding of Georgia's rich cultural heritage, and the science of discovery: Archaeology.

Essential Concepts

Theory and practice in archaeology are based in part on concepts about culture and the most ideal ways to study past human behavior. Within the context of these guidelines, a number of general concepts have been identified as being vital to understanding the archaeological past and its wise use. For educators, this information can be valuable in presenting the perspective from which archaeologists and associated researchers work. Incorporating the following ideas into teaching strategies or resource materials will provide a basis for student comprehension of archaeological principles.

Cultural systems are the focus of anthropological study

1. All humans have the same basic needs, which are met in culturally distinct ways.

2. Culture enables people to adapt to social and natural environments.

3. Culture enables people to change these environments.

4. Aspects of culture are interdependent.

5. Culture changes constantly, reflecting and shaping a number of forces.

Awareness of the past is a fundamental element of archaeological study

1. The Americas have been home to hundreds of cultures for at least 12, 000 years.

2. Most bygone cultures can only be studied by examining the physical evidence they left behind.

3. These material remains—such as sites, artifacts, and structures—are part of a nation's cultural, or heritage, resources.

4. Archaeological, ethnographic, and historical resources add a unique dimension of understanding to cultural studies.

Archaeology is the scientific study of cultures, based on their material remains

1. Archaeology is a subdiscipline of anthropology, which is the comparative study of humankind and human behavior.

2. It is multidisciplinary.

3. It follows scientific process.

4. It is a science of content and association.

5. It employs a range of specialized tools and methods.

6. Data derived from archaeological study can provide unique insights and a sense of time and depth to other disciplines.

Humans affect and are affected by cultural resources

1. Cultural resources provide us with a perspective on our own time and place, and an understanding of cultural diversity.

2. The past is a shared heritage that is valued

by different people for different reasons—including scientific, aesthetic, spiritual, social and political, commercial and economic, consumptive and non-consumptive, and intrinsic reasons.

3. Societies have different approaches to ownership of the past.

4. Cultural and social trends partially define cultural resource issues. Among the contemporary issues are:

- the rapidly changing nature of science and its applicability to archaeology;
- American Indian activism;
- sensitivity toward the treatment of human skeletal remains;
- growing avocational interest in the discipline;
- curation of artifacts and samples; and
- trafficking in antiquities.

STEWARDSHIP OF ARCHAEOLOGICAL RESOURCES SAVES THE PAST FOR THE FUTURE

1. Cultural resources are subject to myriad destructive forces, both human and natural.

2. Cultural resources can be protected and managed for a variety of uses, and many governmental agencies mandate their protection.

3. Wise management depends on a broad knowledge of the resources that are present and the questions that the past can help to answer.

4. Everyone can be involved in managing and conserving cultural resources, locally and globally, based on their values and behavior.

5. Individuals have an obligation to weigh the consequences and impact of their actions on the irreplaceable evidence of past cultures.

A Summary of Georgia's Archaeological Sequence

Period	Time	Subsistence Pattern	Settlement Pattern	Diagnostic Features
Post war, global economy, information age	Present to A.D. 1945	Corporate agriculture, international trade, service industry, and civil service	Suburban-urbanization, second homes, rural abandonment	Public works, transistors, interstate highways, disposable products, railroad abandonment, teflon, computers
Depression, recovery and war	A.D. 1945 to A.D. 1929	Manufacturing, farming, retailing, services, civil and military service	Small towns, farmsteads, mill towns, and company towns	Fiberglass, depression glass, fluorescent light, terracing, stream channelization, nylon, wire nails
Economic growth and expansion	A.D. 1929 to A.D. 1870	Farming, tenant farming, manufacturing, retailing	Dispersed farms, tenant farms, small towns and mill towns	Incandescent light, zipper, diesel engine, vacuum tube, barbed wire, gasoline car, machine-made bottles and bricks, machine-cut nails
Civil War and recovery	A.D. 1870 to A.D. 1861	Farming, military service, manufacturing, retailing	Farmsteads, small towns, and military camps and forts	Military earthworks, internal combustion engine, ironclads, military prisons
King Cotton	A.D. 1861 to A.D. 1783	Farming, plantations, retailing, manufacturing	Family farmsteads, plantations, small towns, Indian Removal, land lotteries	Safety pin, cotton gin, molded bricks, canals railroads, steamboats
Revolution	A.D. 1783 to A.D. 1775	Farming, trading, retailing, factoring, military service	Family farmsteads, plantations, small towns, and military camps and forts	Forts, earthworks, trenches, battlefields, cast iron parts, molded bricks, blown glass
European colonization	A.D. 1775 to A.D. 1632	Farming, trading, pioneering, military service, exporting-importing	Family farmsteads, port towns, pioneer settlements, and Indian villages on unceded lands	Molded bricks, blown glass, wrought iron nails, cast iron vessels
European contact and exploration	A.D. 1632 to A.D. 1541	Farming, trading, hunting, trapping, factoring, exploring	Trading outposts, missions, forts, cantonments, and smaller Indian villages	Glass beads, wrought iron tools and weapons, blown glass vessels, molded bricks
Mississippi	A.D. 1541 to A.D. 900	Intensive agriculture supplemented by gathering and hunting	Large permanent fortified towns with many forms of public architecture, smaller communities, separate homestead, extensive network of foot trails	Temple mounds, plazas, ditches, earth lodges; corn, beans, squash; grit and shell tempered pottery as effigy bottles; small triangular projectile points; canoes for river travel
Woodland	A.D. 900 to 1000 B.C.	Gathering and hunting supplemented by horticulture	Small, widely-dispersed villages inhabited most of the time occupying floodplains and clearing for gardens	Bow and arrow; pottery decorated by stamping, incising and impressing; pottery tempered by sand and crushed quartz; food storage pits; stone and earth burial mounds; sturdy homes
Archaic	1000 B.C. to 8000 B.C.	Gathering and hunting of wild plants and animals; clearing areas in forest to attract game to new plants	Larger seasonally occupied camps	Atlatl (spear thrower), projectile point/ knives; soapstone vessels, fiber-tempered pottery, ground stone tools, axe grinding and hammer stones
Paleoindian	8000 B.C. to >10,000 B.C. End of Ice Age	Small game hunting; fishing, foraging and gathering of various plants; hunting of large game which are extinct today: mastodon, mammoth, giant beaver, ground sloth, musk oxen	Small seasonally occupied camps	Lanceolate projectile points/knives; Clovis projectile points/ knives, end and side scrapers, burins

Digging into the past

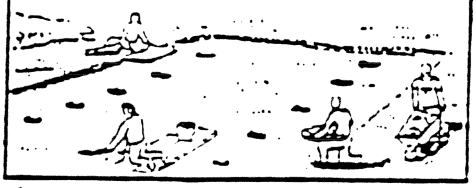
Archaeologists often have to dig into the ground to uncover buried remains. This is called a "dig" or an "excavation" and the place is called a "site". A dig is a carefully planned and highly organized investigation. The methods used depend on the depth of the remains and the amount of time and money available.

Planning a dig

Once the site has been chosen and any landowners has been consulted, the dig itself can be planned. The first is for archaeologists to walk over the site to get an idea its size and examine the type of soil and rock in the area This helps them to work out the number of people and of digging equipment they will need. They also look for pieces of pottery, stone or flints that might indicate the best places to start digging.

Clearing the whole area

Some sites may have been used by people for only a short time so that all the remains are in a shallow layer of soil near the surface. In this case, a large area is gradually cleared to provide an overall plan of the site. The different features can be easily compared.



What happens on a dig

The objects that are uncovered are called the finds. Each type of material (such as bone, metal, or pottery) is put in a separate container according to the layer it was found in. At the end of each day, the finds are collected together in one place. The pottery is washed and dried and all the objects are marked in ink with numbers that indicate the site, the year, the layer and trench they were found in.

Pottery being washed and sorted.

Keeping records

The most important job during a dig is to record exactly where everything was found and what it looked like when it was discovered. This helps archaeologists to work out what the different parts of the site were used for and where buildings once stood.

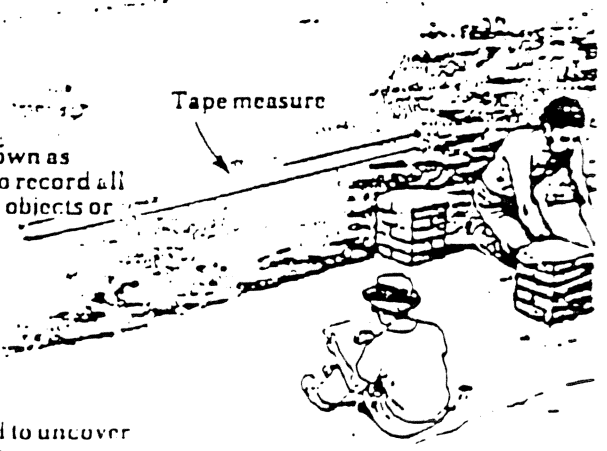
The records include written descriptions and accurate drawings (to scale) of all the important objects and features, such as walls, pits and floors. Small computers are often used to keep records on many digs. As new features are uncovered, they are added to the plan.

How layers build up

If people have lived on the same site for hundreds or thousands of years, there will be many layers of remains on top of each other. This is known as a stratified site – strata means layer. The oldest layers are at the bottom and the newest at the top, though worms, burrowing animals and plant roots may disturb the layers.

Drawing the layers

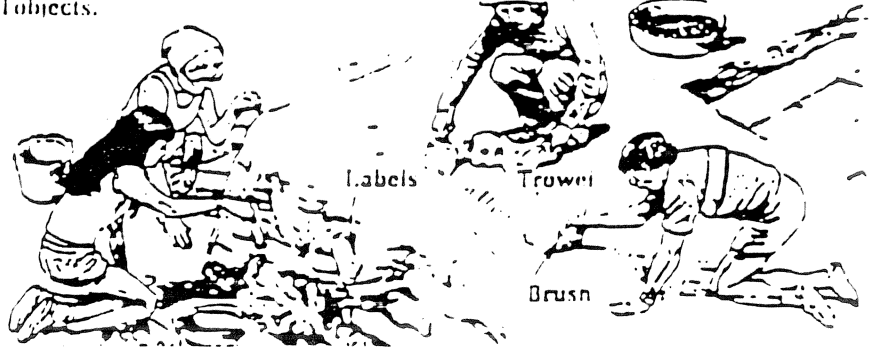
The sides of the trenches, known as sections, are drawn to scale to record all the layers and any important objects or features.



Tape measure

Equipment

Trowels and brushes are used to uncover finer details and fragile objects. Sometimes a sieve is used to collect very small objects.



Sieve

Labels

Trowel

Brush

Digging through the layers

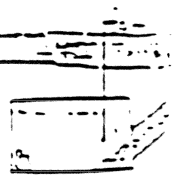
In the scene to the right, you can see archaeologists working on a site with many layers of soil and human remains. They have dug deep trenches and are carefully removing one layer at a time to uncover every tiny piece of pottery, bone or metal that might help them to build up a picture of the people who lived on the site.

Surveying the site

The site is carefully surveyed before and during the dig and often at the end of the dig as well. Surveying involves measuring distances, directions and angles using equipment such as the theodolite in the picture to the right. The exact shape and size of the surface of the ground can then be worked out so an accurate plan of the site can be drawn up. The plan may be divided into trenches or a grid of numbered squares.

Seeing underground

When hundreds of Etruscan tombs were discovered, archaeologists used a long probe with a light and camera on the end to see into the tombs to help them decide which ones to excavate.



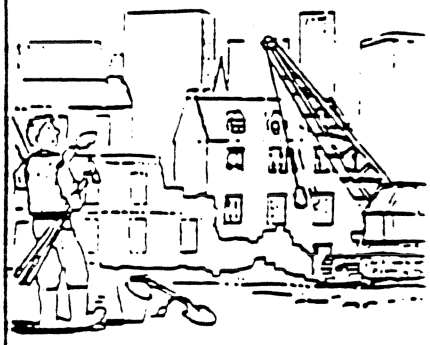
Photographs

Three main types of photographs are usually taken on a dig.

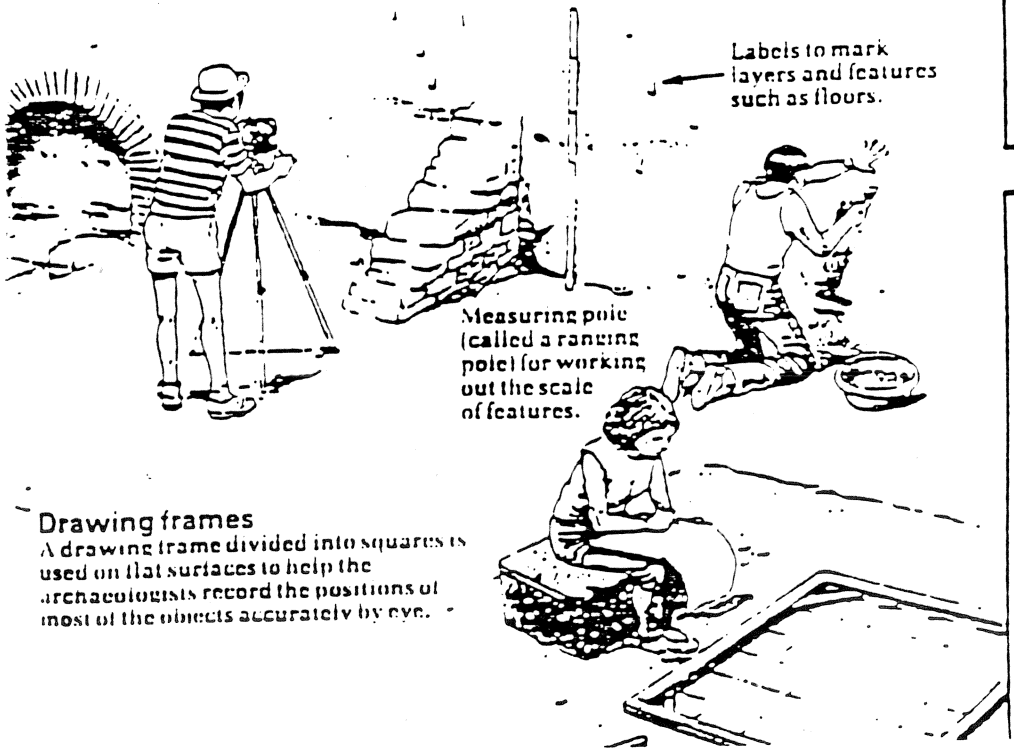
1. Photographs of the parts of the site included in the section and plan drawings. (This allows the information on the drawings to be cross-checked later on.)
2. Photographs of the site and the finds that will be needed when the work is published.
3. Colour slides that might be needed for lectures.

Rescue digs

With the building of new houses, offices and roads, many new sites are being discovered. However, the time available to excavate them may be limited because the builders want to start their own work. This type of dig is called a rescue or salvage dig.



On a rescue dig, archaeologists try to gather as much information as they can in a short time. They may choose a few small areas to excavate thoroughly and work faster in other areas.

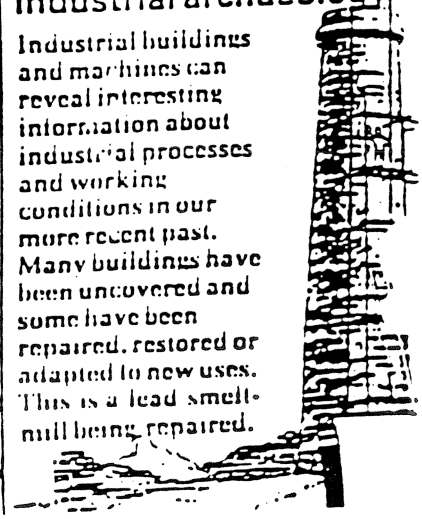


Drawing frames

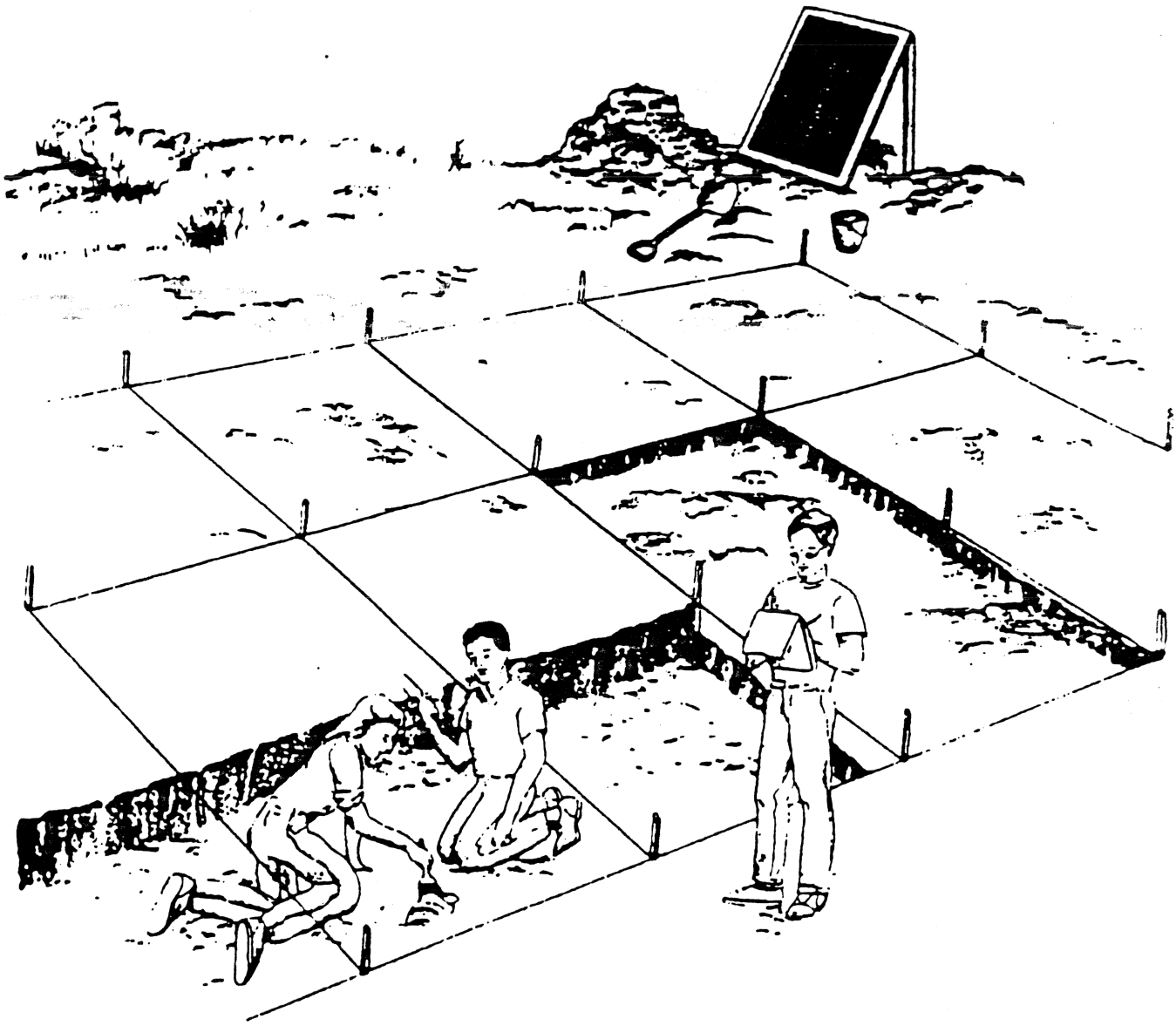
A drawing frame divided into squares is used on flat surfaces to help the archaeologists record the positions of most of the objects accurately by eye.

Industrial archaeology

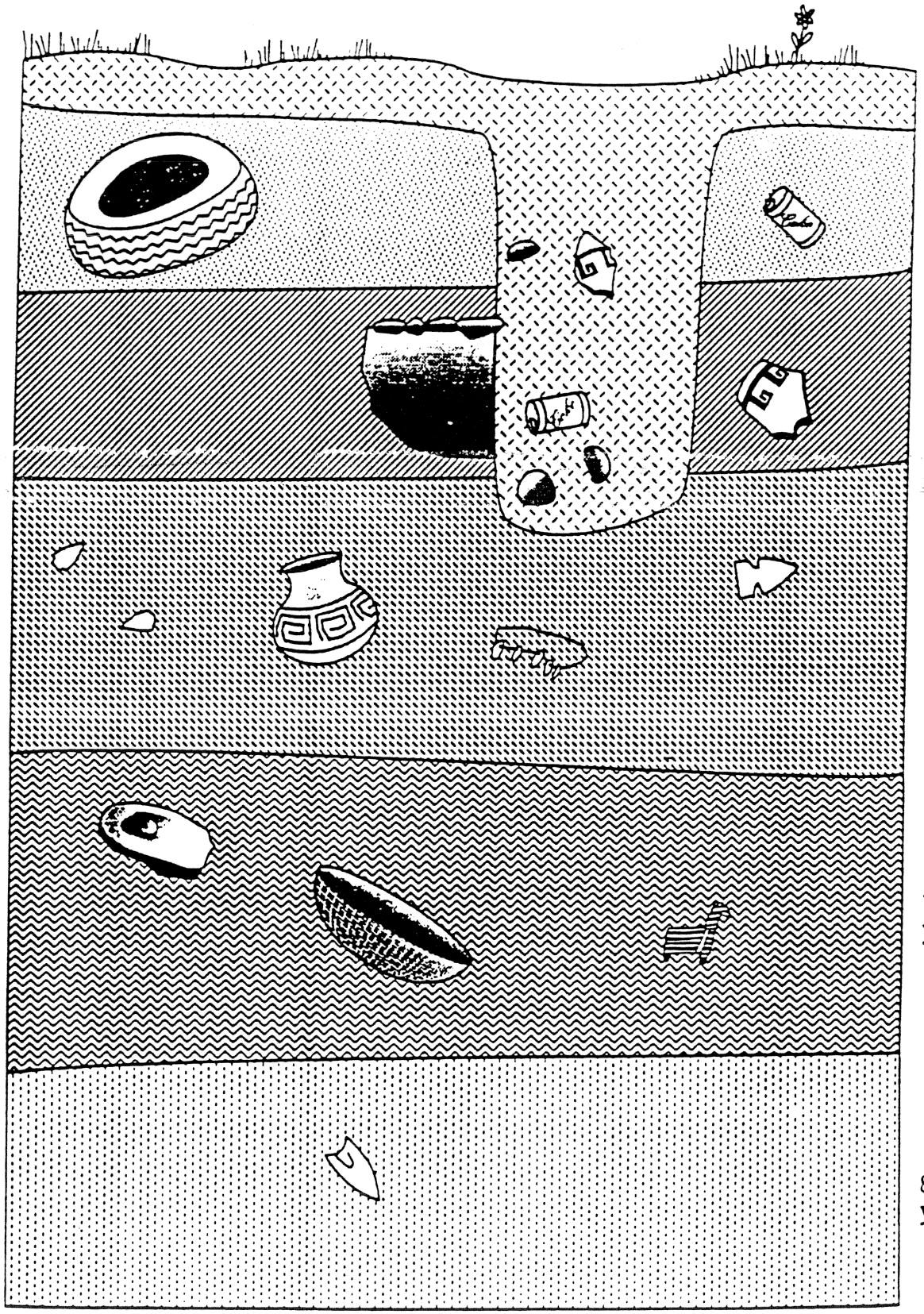
Industrial buildings and machines can reveal interesting information about industrial processes and working conditions in our more recent past. Many buildings have been uncovered and some have been repaired, restored or adapted to new uses. This is a lead smelt-mill being repaired.



Excavating a Site



Stratigraphic Section



VOCABULARY

Archaeology: a method for studying past human cultures and analyzing material evidence (artifacts and sites).

Archaeological site: a place where human activity occurred and material remains were left.

Artifact: an object made, used or modified by humans.

Assemblage: a group of artifacts or features; assemblages are used to interpret activities and time periods at a site. Sometimes referred to as occupation level.

Attribute: characteristics or properties of an object, such as color, shape, size.

Bearing: to ascertain the direction or point of the compass in which an object is seen; ones position on the compass.

Behavioral inferences: conclusions about human behavior; archaeologists make inferences about the behavior of past people based on objects

Cartesian coordinate system: two or three dimensional graph based on intersecting, incremented lines or planes. The grid system used for archaeological excavations.

Chronology: an arrangement of events in the order in which they occurred.

Ceramic: another word for pottery, some say ceramics are fired glazed pottery, while sherds are more primitive.

Classification: systematic arrangement in groups or categories according to established criteria.

Context: the relationship artifacts have to each other and the position, depth and locations in which they are found.

Cross-dating: the principle that a diagnostic artifact dated at one archaeological site will be of the same approximate age when found elsewhere.

Culture: the set of learned beliefs, values, and behaviors generally shared by members of a group or society. "The way the members of a group of people think, believe, and live the tools they make, and the way they do things" (Braidwood 1967 :30)

Cultural Relativism: studying other cultures without judgments or categories from one's own culture

Cultural Resources:	a definite location of past human activity, occupation, or use identifiable through field surveys, historical documentation, or oral evidence; and including historic and prehistoric sites
Data:	information, especially organized for analysis
Datum:	something to use as a basis for measuring
Deface:	spoiling or marring the surface or appearance of something
Diagnostic artifact:	an item that is indicative of a particular time and or cultural group: a computer would be a diagnostic artifact of modern age
Ethnic:	relating to people who are grouped according to common racial, tribal, religious or other backgrounds
Evidence:	data which is used to prove a point or clearly indicate a situation
Excavation:	systematic uncovering of archaeological sites
Feature:	evidence of human occupation that cannot be moved; foundations, wells, fire pits, etc.
Grid unit:	a specific spatial area on the Cartesian coordinate system, designed by the coordinate in one corner (usually the SW corner)
History:	the record of human events after writing was developed
Hypothesis:	a proposed explanation accounting for a set of facts that can be tested by further investigation
Inference:	a conclusion derived from observation
Isolated find:	a single artifact or small number of artifacts not associated with any other artifact or feature: a single feature such a fire pit may be considered an isolated find
Midden:	an area used for trash disposal, typically related to early native peoples
Observation:	recognizing a fact or occurrence
Occupation level:	an area on an archeological site which shows evidence of human occupation at one specific period of time
Pre-history:	the period of time before written history
Preservation:	the act of preserving and protecting resources. Laws are in place related to protection of archaeological resources.

Pottery sherd :	a piece of broken pottery, usually relates to crudely fired pieces
Primary Source:	a first hand account of an event, such as an autobiography, journal, maps, drawing,
Provenience:	specific location of something
Secondary source:	a second hand account of an event, a media article, a review, a biography
Sherd (shard):	a piece of broken pottery
Site:	a place where people have done something and left evidence of their activities behind.
Site Datum:	an arbitrarily established point from which the entire site is measured and recorded
Strata:	layers of earth
Stratigraphy:	the layering of deposits in archaeological sites. Cultural remains and natural sediment become buried over time, the layer on the bottom is the oldest, the layer on the top is the youngest
Stratum:	one layer of earth
Survey:	a systematic examination of the surface of the land for the purpose of locating and recording archaeological sites
Timeline:	a visual representation of events in chronological order
Typology:	the classification of artifacts into groups or types which are similar in some way.
Vandalism:	willfully or maliciously defacing or destroying public or private property.

VOCABULARY

Archaeology:

Archaeological site

Artifact:

Assemblage:

Attribute:

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Behavioral inferences

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Sherd (shard):

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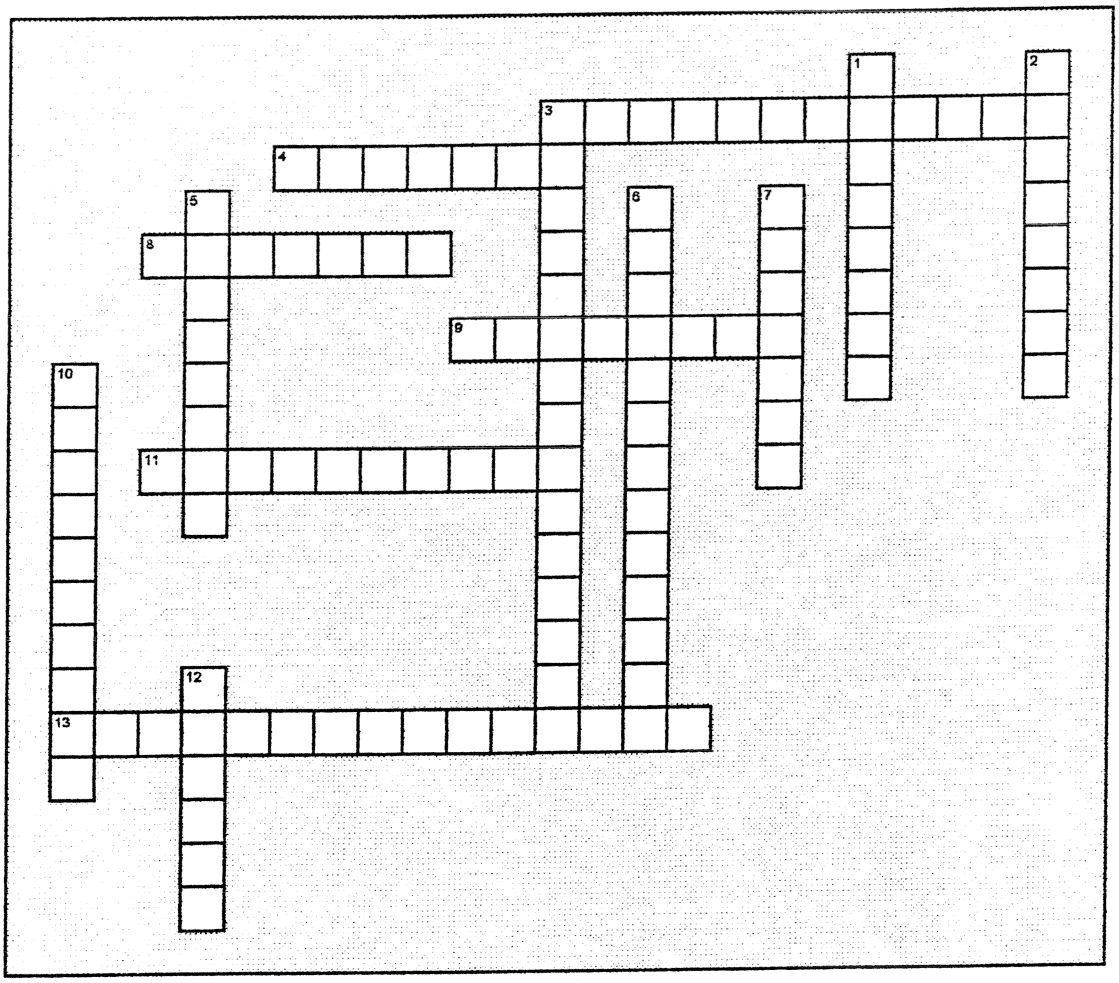
Name _____

Crossword



Across

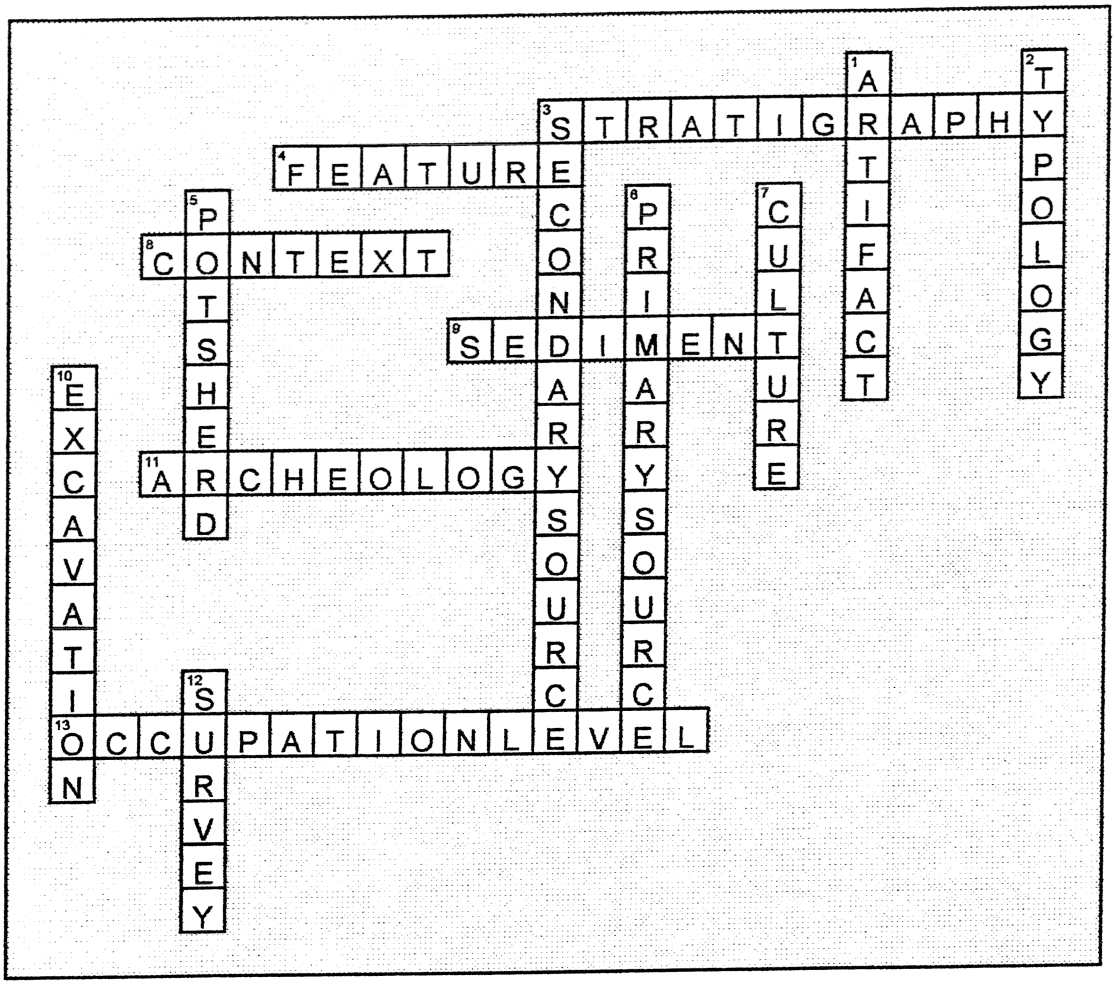
3. The study of separate layers, or strata, of deposits (soils, rocks, buildings) which accumulate over time, with each layer being older than the one above it and younger than the one below.
4. Evidence of human activities, which cannot be moved such as hearths, post holes and rubbish pits.
8. The surrounding and exact location in which artifacts are found. This includes the type of soil, other related objects and landscape.
9. layers of earth and other materials deposited through wind, water, and erosion, these layers cover and surround archeological sites.
11. The search for clues about a culture, time period or people through various methods of investigation, most often excavation.
13. An area on an archeological site which shows evidence of human occupation at one specific period of time.

Down

1. Any object, that has been made, used, or modified by humans, for example stone or metal tools, jewelry, pottery, flint arrows, axes etc.
2. The classification of artifacts into groups or types which are similar in some way
3. A written document or article which was written after the event happened
5. A fragment of pottery
6. A historical account written in first person or other printed material which comes from first hand accounts such as court records, diaries, maps etc.
7. Refers to a particular grouping of behaviors, beliefs, lifestyles, traits and objects shared by a group of people.
10. The removal of earth from an archeological site in a systematic manner in order to recover archeological data.
12. Searching the landscapes for signs of archeological sites by walking over the land, aerial photography or using subsurface techniques

Name Answer Key

Crossword



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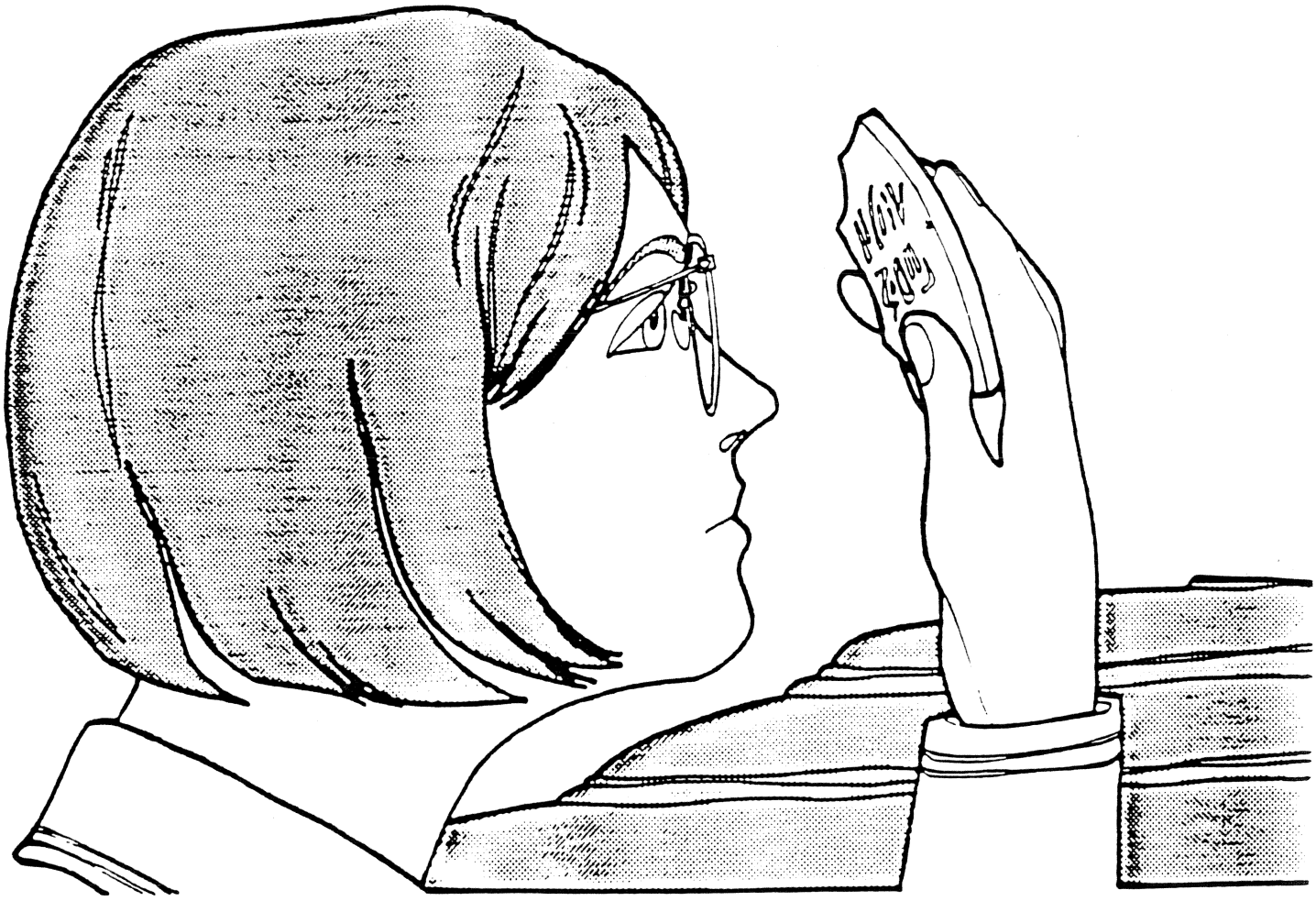
Who Are Archeologists?

Archeologists are people—scientists—who do the work of archeology. Archeology is a career requiring a lot of patience and a lot of knowledge. The archeologist must be able to *find* sites that contain artifacts left there by people of the past and then to *figure out* what the artifacts indicate about the people and their way of life. The archeologist is usually also an **anthropologist**, a scientist who studies the origin, culture, and values of different people. It's helpful for the archeologist to be trained in biology, chemistry, geology, paleontology, photography, zoology, and a number of other related areas.



Activities

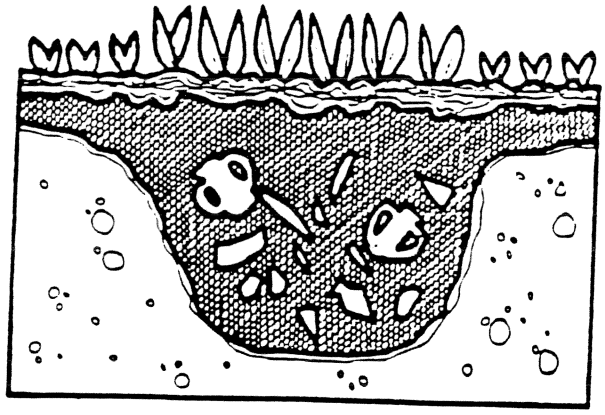
1. Use encyclopedias or other reference books to discover what is studied and learned in each of the areas listed below. Then, tell how this information would be useful to an archeologist.

a. anthropology
b. biology
c. chemistry
d. geology
e. paleontology
f. photography
g. zoology

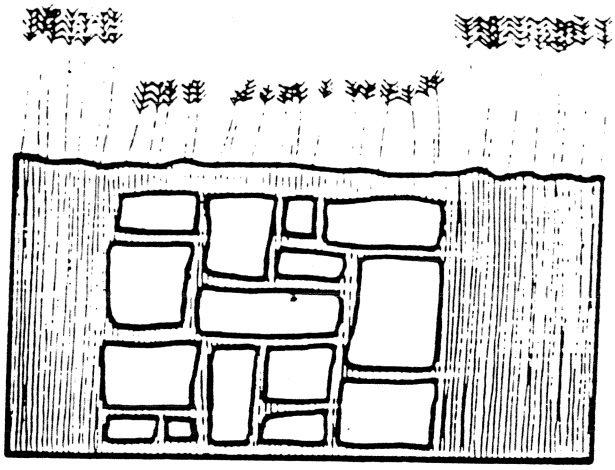
Name _____

Above-Ground Clues

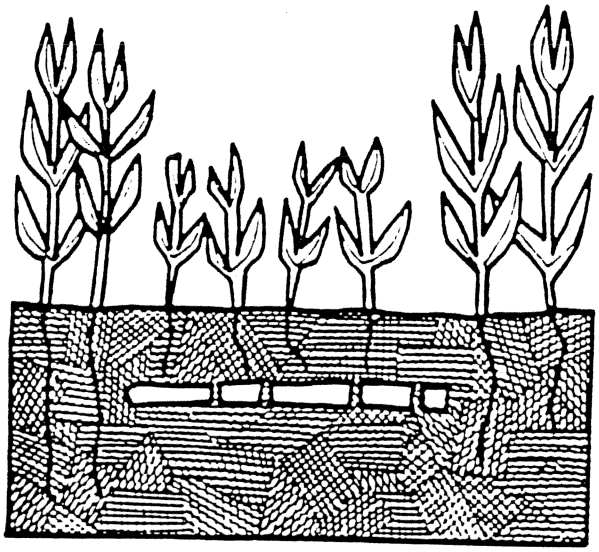
Archeologists, like detectives, have learned to use clues to solve a mystery. Archeologists generally have to dig into the ground to find most of their clues, but they also must be able to spot above-ground clues, ones that are visible without digging. Often above-ground clues enable an archeologist to make a scientific guess as to where to locate the dig site. Below are four examples of above-ground clues.



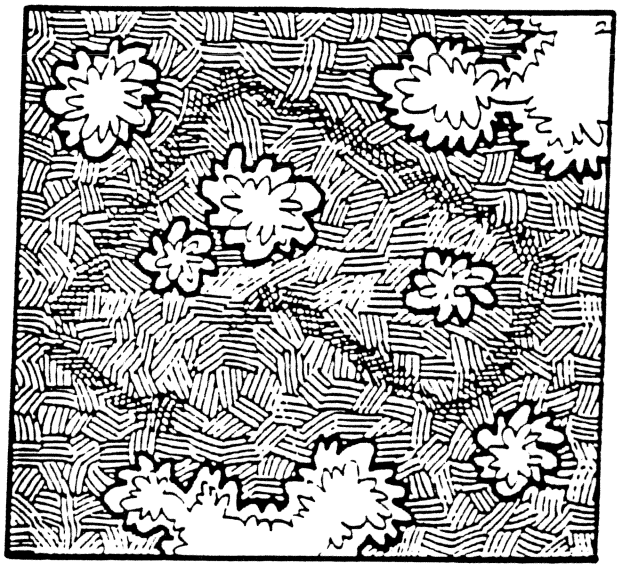
Crops come up earlier and stay greener where there are ancient pits filled with soil.



Crops come up later and fade earlier where they grow above ancient walls.



Corn grows shorter over buried road surfaces or ancient walls.



Faint ground markings visible only from the air indicate places where buildings once stood.

Activities

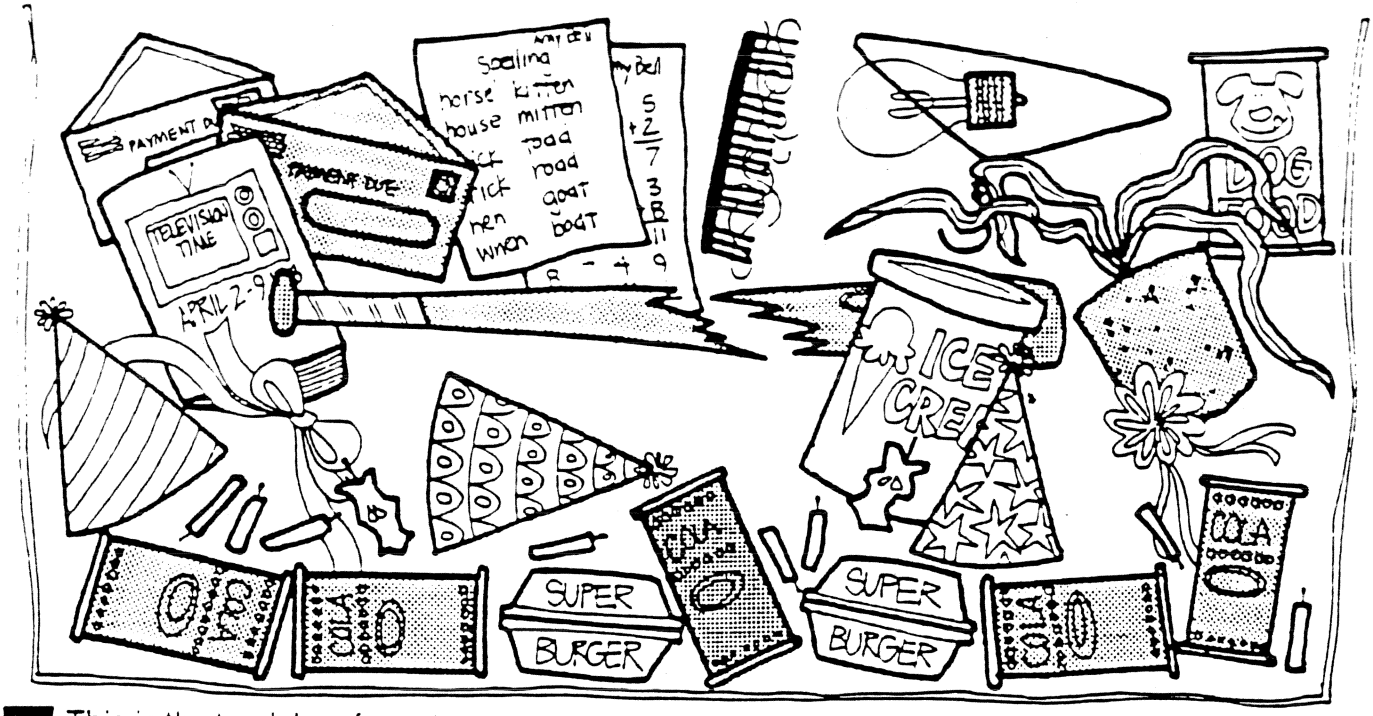
1. You are an archeologist. You discover a difference in vegetation in an area you suspect is an ancient burial site. Predict what you might discover at the site. Illustrate your predictions.

2. Of what importance are thermoluminescence and tephrachronology to archeologists?

Name _____

Trash Bag Archeology

Archeologists are able to reconstruct the way ancient people lived by studying the artifacts from their culture. Often these artifacts were deposited in garbage heaps, or **middens**. Artifacts found on the top are usually the newest, or most recently deposited, while those found on the bottom are the oldest.



This is the trash bag from Apartment 4B. Carefully observe the artifacts deposited in it. What do the artifacts tell you about the tenants in this apartment? Comment on the sequence of events.

Name _____

Vacant Lot Archeology

By studying modern vacant lots, an archeology student can learn how to identify artifacts and gain experience in hypothesizing about their use and meaning to a culture.

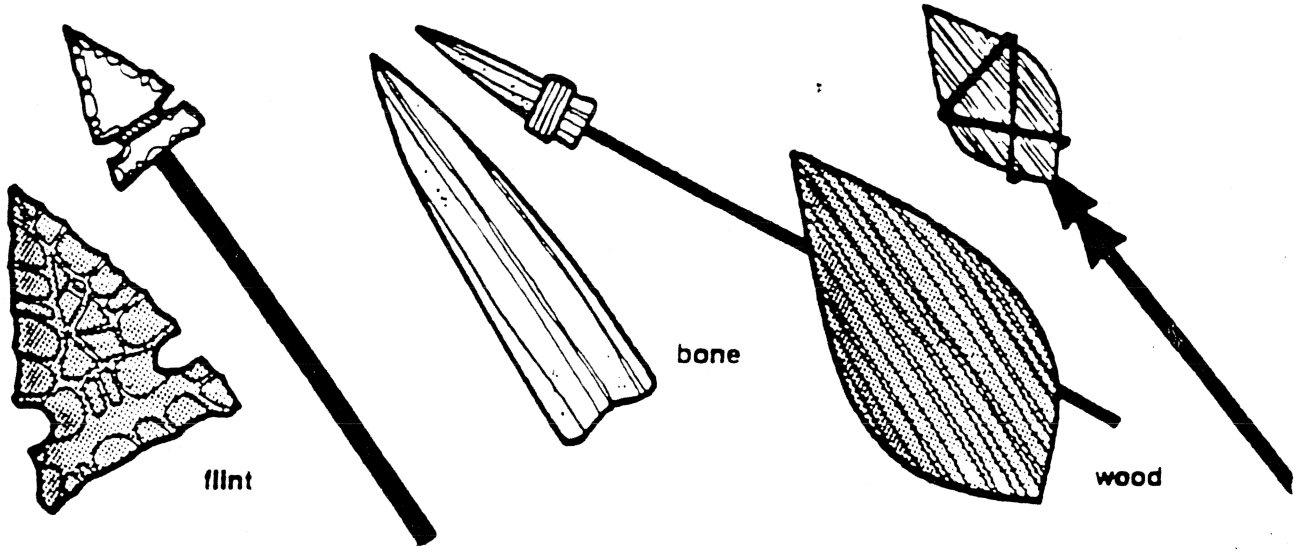
Study the drawing of a vacant lot below. Identify five artifacts that tell you something about the people who use this vacant lot.

Name _____

Artifacts

Artifacts are objects that have been made or modified by humans. Archeologists search for and study them. Sometimes, they have difficulty telling whether a stone found at a site is just a stone or is a genuine artifact—that is, a stone that has been chipped or shaped in some particular way by a person of long ago.

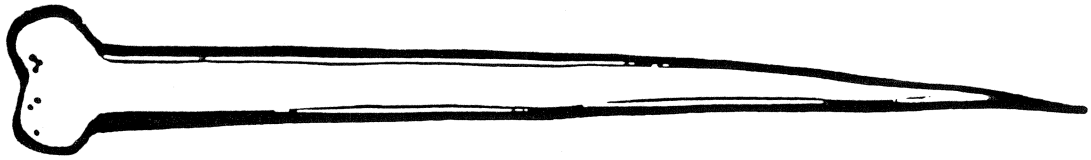
When archeologists are searching, they often find only part of an artifact because it has been broken or was made of a material that did not last. Arrowheads are artifacts that survive the passage of time because they are usually made from stones or bones. They come in many shapes and sizes and may have been used on arrows, spears, or utensils for preparing food. They were usually tied to a wooden shaft with leather thongs or sinews. Often when archeologists find these arrowheads, the leather and wood have disintegrated, but in some dry caves, these ancient weapons and utensils have been preserved intact.



Archeologists can learn a great deal from the arrowheads found in a region. For example, if they find arrowheads made of flint in an area where that hard stone does not occur naturally, they know that the people who inhabited that area may have traveled, traded with, or been attacked by people from another area in which flint does occur.

Activities

1. In two separate columns, list some weapons or tools we have today that might survive over time and some that might not because of the material from which they are made.
2. If you were suddenly left without any weapons or tools, how could you use natural objects to protect yourself and to obtain and prepare food?
3. To appreciate how hard it was for ancient peoples to make arrowheads, get some rock that splits easily (such as flint, chert, or obsidian) and try to fashion one yourself. Perhaps you'd like to consult a book or a local expert on flint knapping or sand-and-water grinding.
4. Bone tools are easier to make because bone slivers easily. Try making bone tools.



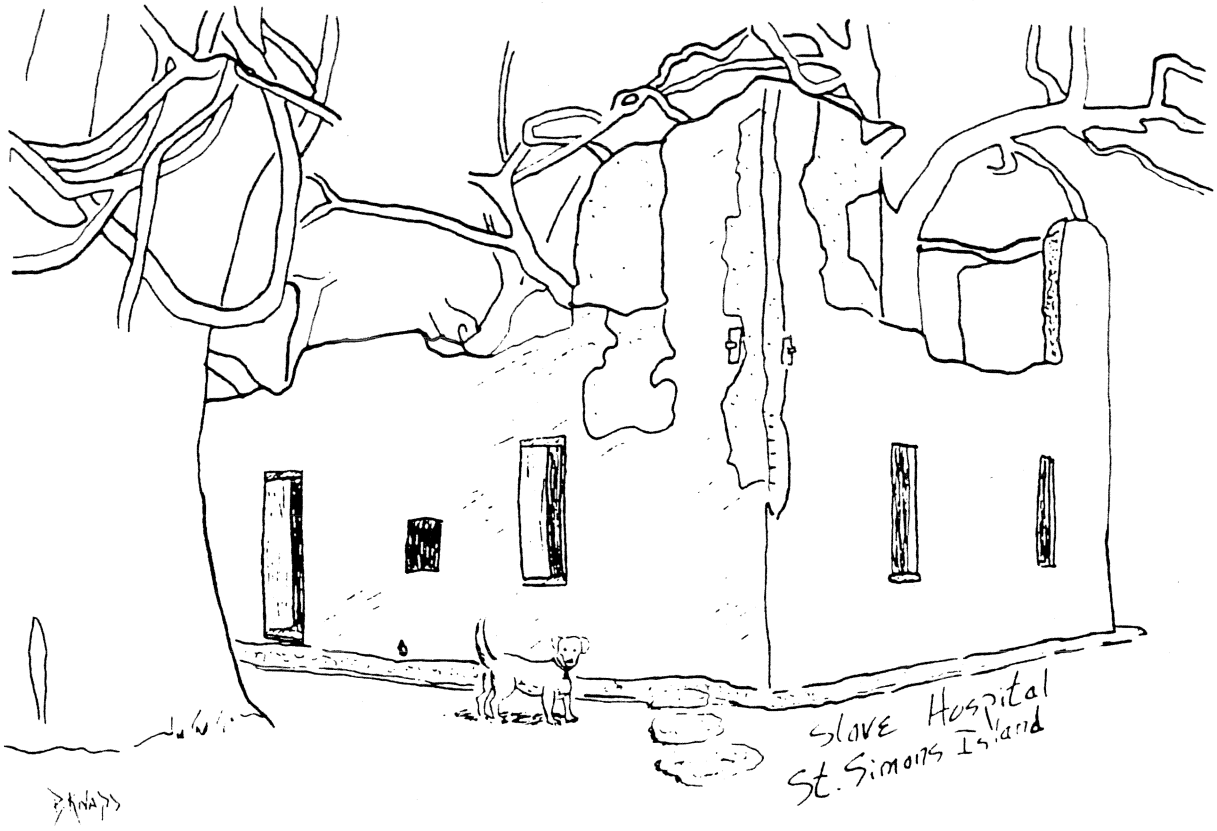
Prehistoric Archaeology?

A prehistoric site dates from the time before people kept written records.

Quiz: Using a red-colored pencil, fill in those pictures showing the sources an archaeologist would use to help locate a prehistoric site.

Historic Archaeology?

An historic site dates from the time when people kept written records.



Quiz: Using a red-colored pencil, fill in those pictures showing the sources an archaeologist would use to help locate an historic site.